DOCUMENT RESUME

ED 353 414 CE 062 827

AUTHOR Wrigley, Heide Spruck
TITLE Competitive Skills Project (CSP). External Evaluator's Report.
INSTITUTION Aguirre International, San Mateo, CA.
SPONS AGENCY Office of Vocational and Adult Education (ED), Washington, DC. National Workplace Literacy Program.
PUB DATE 20 Jun 92
NOTE 14p.; For the final report, see ED 348 489.
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Adult Basic Education; *Basic Skills; Communication Skills; Corporate Education; *Critical Thinking; Education Work Relationship; Employer Employee Relationship; *Literacy Education; Mathematics Instruction; *Problem Solving; Program Evaluation
IDENTIFIERS Total Quality Management; *Workplace Literacy

ABSTRACT

An external evaluation was made of the Competitive Skills Project, a National Workplace Literacy Program carried out in partnership between El Camino College and BP Chemicals. Among the problems identified were the following: (1) because the original director and his successor left the project, the original evaluation design could not be implemented; (2) the sponsor precluded testing of all participants; and (3) lack of a coordinator and of teacher training resulted in failure to collect baseline data on participants against which learner progress could be measured. The external evaluation included technical assistance at the beginning of the project, group discussion with supervisors and managers, and focus groups with workers, managers, and supervisors. Major outcomes included the following: (1) improved skills; (2) positive workplace climate and increased worker confidence; (3) greater educational opportunities; and (4) increased productivity. Success of the program was attributed to flexible approach, responsiveness to client needs, and participation of all partners in development. Concerns expressed included a need for smaller classes, slower pace, and instruction in basic communication skills that were not job specific. The following recommendations were made: (1) develop a conceptual framework that helps to operationalize the curriculum; (2) develop an assessment framework that operates on two levels, program wide and course specific; (3) respond to the needs of workers who need additional support in order to develop the necessary total quality management skills; and (4) consider offering a series of workshops on communication strategies for total quality management to help build cross-cultural understanding and facilitate communication between front-line workers and supervisors. (CML)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED353414

# COMPETITIVE SKILLS PROJECT

# (CSP)

## EXTERNAL EVALUATOR'S REPORT

**Prepared by**

**Heide Spruck Wrigley**
**Senior Research Associate**
**Aguirre International**

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

**Submitted to**

**The Department of Education**
**Office of Vocational and Adult Education**

**June 20, 1992**

CE062227



BEST COPY AVAILABLE

## PART I: CONTEXT AND CHALLENGES

The Competitive Skills Project (CSP) was carried out through a partnership between El Camino College, a public community college serving 27 000 students, and BP Chemicals (HITCO), a manufacturing firm, specializing in high temperature advance composite products for aerospace and industrial markets. Hitco has a highly diverse work force and many workers do not have the basic skills necessary to participate effectively in the Total Quality Management approach the company is implementing. The technology changes that are imminent (Continuous Improvement, Statistical Process Control) also require skills upgrading. In response to company needs, the Competitive Skills Project was established in July, 1990 and concluded in April, 1992. A no cost extension was granted until July 31, 1992.

There are many indicators that the project was successful overall (see documentation by project staff) and resulted in positive outcomes for the company and its employees (see below). However, as is the case with many workplace projects, CSP faced a number of challenges that made learner assessment and program evaluation difficult. Since both the original director (Nick Kremer) and his successor (Georganna Ahlfors) left the project, the original evaluation design could not be implemented. In addition, HITCO's concerns about worker testing precluded the use of a standardized test for all participants. Since the project did not have a curriculum coordinator, and teachers were not trained in assessment techniques, there is no data that would allow for comparisons across classes. (However, each teacher administered class tests and graded participants). As a result of these difficulties in implementation, the project was not able to collect base line data on participants against which learner progress could be measured. In the absence of such data, it is not possible to aggregate data across learner groups or determine what percentage of employees reached the objectives outlined in the original evaluation plan.

## PART II: LEARNER ASSESSMENT AND PROGRAM EVALUATION

The success of the project can be judged by two types of data: (1) **quantitative data** on levels of participation and number of courses offered and (2) **qualitative data** on learner outcomes (selected participants) and workplace impacts (reports from supervisors and managers). Quantitative data, along with program implementation data and reports on goal achievement, can be found in the program final report submitted by El Camino directly. Qualitative data focusing on program outcomes as perceived by selected participants and stakeholders is addressed in this report.

### A. METHODS

Assessment and evaluation activities consisted of two components: (1) internal assessment conducted by project staff and (2) external evaluation conducted by the outside evaluator.

1. **Internal evaluation** consisted of the following activities:

    a. A needs assessment and literacy audit of supervisors and managers

    b. Informal assessment by teachers to place learners into appropriate classes and design curriculum that meets their needs

    c. Ongoing assessment and testing by teachers on the content covered in the various classes; final test

    d. Class evaluations by participants indicating degree of satisfaction with the instruction offered

e. Supervisor surveys to measure satisfaction with the instruction and gauge the effectiveness of the program

(For outcomes on these activities, see Project Final Report submitted by El Camino).

**2. External evaluation** included:

1. *Technical assistance* at the beginning of the project (with Mr. Kremer and Ms. Ahlfors) to discuss strategies for implementing ongoing learner assessment as part of a comprehensive evaluation design.

   Outcomes: The possibility of using standardized literacy tests such as the ETS test of Applied Literacy or the BEST test were discussed and a broad assessment framework was outlined. Alternative assessments such as learner portfolios, simulations, case studies and performance tests were discussed as well. The evaluator suggested that surveys and focus groups be used to judge the impact of the program on employee performance.

2. *Group discussion* with several HITCO supervisors and managers to discuss the purpose of evaluation and identify concerns.

   Outcomes: HITCO personnel stressed the importance of "problem solving" and "reasoning skills" required for Total Quality management. They also emphasized the importance of communication skills for employees who are not fully proficient in English.

3. *Formative evaluation*

Outcomes: Due to the challenges presented by the changes in directorship, the program was not able to implement a formative evaluation. Neither was it possible to carry out a comprehensive summative evaluation since outcome data was not comparable across groups.

3. *Final evaluation* based on focus groups with workers, managers, and supervisors to document HITCO's perception of the impact of the program on workers' lives, productivity and company morale.

The worker group consisted of seven employee who had participated in the program. These participants had taken DOE funded classes in Vocational English as A Second, English communication skills, and Math for Quality. The supervisor group included six individuals each of whom supervises one of the employees interviewed in the participant focus group. The management group included managers in the areas of Manufacturing, Plant management, Human Resources, and Quality Assurance as well as the Vice President and General Manager of Hitco and the Vice President of Quality Assurance.

## B. MAJOR FINDINGS

*"The more you know, the greater the chance that they will keep you on"*

Employee who participated in the Competitive Skills Project

### *1. Improved Skills*

All respondents cited positive outcomes for the project. Workers, in particular, stressed that the project helped them to be prepared for job changes since manufacturing jobs are becoming increasingly competitive. They saw the basic skills program as an opportunity to gain more education and upgrade their skills. Bilingual employees said that improved English and greater communication skills gave them a chance for job mobility. Workers also stressed that the classes prepared them to work in teams, a required skill for Total Quality Management.

The workers who had participated in the project indicated that their skill levels had improved, both in English and in Math. Participants from the ESL classes told the evaluator that they were better able to understand what goes on at work (and why) and found it easier to understand supervisors and co-workers.

All respondents reported that project participant had acquired the kind of skills needed for effective TQM operations. Supervisors indicated that many of the employees who had difficulty talking in front of the group showed improvement. Continuous exposure to English was seen as necessary so that they could effectively participate in quality teams.

*2. Positive workplace climate and increased worker confidence*

Supervisor and managers also mentioned that the overall climate of the workplace had improved. By introducing classes and offering release time, management was seen as "people who cared", as a result, productivity increased since employees were willing to work harder and work more efficiently. The project thus was seen as an essential component in the companies attempt to develop the skills and abilities of all employees: workers, supervisors, and managers.

Supervisors reported that employees appeared proud of their new found skills and showed greater confidence in their ability to communicate with others. The managers in particular indicated that employees had made great strides in expressing themselves. Some had spoken up for the first time at quality meetings and interaction between supervisors and employees had improved, as well. Since open communication has been identified as a critical factor in continuous improvement and collaboration between management and labor, these changes were seen as particularly significant.

The project has an a positive impact on the lives of workers beyond the workplace. Program participants and their supervisors reported that increases in skills helped employees feel more confident in their ability to deal with everyday communication and math problems. Being able to help children with their homework was seen as an important side benefit of the training.

*3. Greater educational opportunities*

One supervisors also felt that offering classes at the work site (instead of "across the street", (at the college, where for credit classes are offered) provided additional benefits for participants who did not feel confident enough to take "college courses". In the past, some employees had found the college quite daunting and became discouraged. They then dropped

out, "costing another employee a seat" and wasting taxpayers money. This supervisor praised the program for allowing employees "to get their feet wet" and giving them the opportunity to participate in an educational program that is supportive and encouraging.

The fact that the project offered a variety of classes that involved various types of problem solving was also seen as a positive factor. Managers pointed out that workers now seemed better prepared to deal with "cross-training", an essential part of TQM. The project was seen as contributing to both the "soft" and "hard" factors of TQM. Soft factors included better communication skills, greater willingness to work together, and increased self-confidence. Hard factors included higher levels of quantitative literacy and computer literacy. The managers interviewed indicated that program participants had improved in all of these areas.

*4. Factors associated with thè success of the program*

The managers interviewed indicated that much of the success of the project was due to three factors: (1) flexibility in approach; (2) responsiveness to the needs of the client and (3) participation of all partners in the development of the project. The group offered these details: Unlike traditional skills classes offered at the college, , the functional context instruction of CBS was based on an assessment of company needs and supervisor concern. There were few barriers to participation, and educational guidance was provided to help employees with goal setting. The fact that managers were involved in the skills analysis and were kept up to date on curriculum development was also seen as an important factor in the effectiveness of the program. .

The collaborative nature of the project was seen as fitting well within the framework for change that the company supports. Managers mentioned that attitudes that maintain that "people on the shop floor don't know anything" are changing. Line workers now want to participate to hear what is going on, to have their voices heard.

### 5. *Increased productivity*

Both supervisors and managers indicated that the quality of work has gone up and the amount of work that needs "rework" went down. They also reported a greater rate of "no defects" and a decrease of "operator induced" errors (exact data is not available).

Although it is not possible to establish a one-to-one relationship between the literacy program and improved workplace performance, supervisors and managers felt that there was a strong correlation between program participation and increased productivity improvement can be established

### 6. *Concerns expressed by workers, supervisors, and managers*

Both supervisors and workers felt that smaller class sizes were needed. There was a particular concern about the progress that employees with lower levels of proficiency were able to make. According to the supervisor and the employees who participated in the communication skills classes, the instruction moved a bit too fast for participants who had only minimal English skills. (Similar concerns were expressed about the math class which moved too fast for some of the learners).

In addition, several of the employees wished for more opportunities to learn basic functional communication skills (i.e. asking for information, explaining a problem; making a suggestion) that were not necessarily tied to job performance. These participants said the had hoped that the program would help them deal with every day communication problems, on the job and off. Several supervisors felt that the greatest need for English was at the most basic levels of communication and suggested that "practical English" and "conversational ability" should be stressed. In their view, job specific technical knowledge can be introduced later, after employees have gained fluency in English.

## PART III: COMMENTS AND RECOMMENDATIONS

The challenges that the project faced and the successes it experienced reflect many of the difficulties that workplace literacy field as a whole has experienced (U.S. Department of Education,[1] 1992). The lack of stability in personnel makes it difficult to implement a coherent framework and insufficient assessment experience on part of the staff results in uneven evaluation data. This state of affairs is true for the entire adult literacy field (Alamprese, 1988[2], Wrigley and Guth,[3] 1992).

On the positive side, the project's success in increasing the communication and math skills of employees while at the same time boosting their confidence, mirrors the results of other innovative programs, as well. This particular project has been successful in increasing the skills required for Total Quality Management, thus helping to reshape the company and contributing to its economic success. By operating a technology lab, the project also provided access to the kind of technology knowledge that will be required in the future.

Another noteworthy outcome of the project is the change in organizational climate that it helped effect. By facilitating communication among employees as well as between supervisors and front-line workers, the project has had an impact on the overall workplace that goes beyond the individual who attended classes. In addition, the project has led to a greater appreciation of the company's educational efforts, and workers seem ready to contribute additional efforts to the company's success.

---

[1] Workplace Literacy: Reshaping the American Workforce:U.S. Department of Education, Office of Vocational and Adult Education; Washington, D.C., 1992

[2] Adult literacy: Research and Development: An Agenda for Action by Judith Alemprese; Southport Institute for Policy Analysis, 1988

[3] Bringing Literacy to Life: Issues and Options in Adult ESL Literacy by Heide Spruck Wrigley and Gloria J.A. Guth; San Mateo, California; Aguirre International, 1992

The project has proven to be a stimulus to other changes at Hitco as well. In the spring of '92, Hitco conducted a wellness fair for its employees. It also held a "town meeting" where the economy and the company's role in the international market place were discussed, and employees and management engaged in a dialogue about the company's future. Managers stressed the link between these new projects and the workplace literacy program. The project has thus contributed to a collaborative model of worker education, where all partners participate and share responsibilities.

## Recommendations:

Although a summative evaluation for the 1990/1992 cycle, this evaluation serves a formative function as well, since a new project, The Basic Skills For Quality Project, has been funded for the next cycle. Staff should consider the following:

1. Develop a conceptual framework that helps to operationalize the curriculum. This framework should outline the overall educational approach and list the kind of skills that are taught across components (e.g., problem solving, communication, effective reasoning, team work) as ). In addition, the project should link the overall goals to the specific skills that are being taught in each course (e.g., math for quality, functional ESL, computer accessing skills). At present, the curriculum appears somewhat fragmented and disjointed.

2. Develop an assessment framework that operates on two levels: program-wide and course-specific.

   a. Program wide assessment should include strategies for determining needs, assessing proficiency levels to that learners can be placed correctly and measuring the progress that learners make as they participate in the program. It should also include means for capturing the impact the project is having on the overall workplace (increased production, team building, better communication). Program-wide assessment requires that the program collect

base line data at the beginning of each cycle against which progress and achievement can be measured. Program wide assessment should include input and feedback from all stakeholders: teachers, learners, supervisors, management. Appropriate tools include interviews, surveys, observations and focus groups. (A major shortcoming of the present project was that no program wide assessment was conducted).

b. Course-specific assessment should include assessing learner's knowledge and skills at the beginning of each course, at midpoints, at the end of a course. Assessment techniques should focus on performance-based assessments, such as portfolios, case studies, simulations, and role plays, rather than traditional pencil and paper tests. Observation charts, developmental checklists or competency lists can also be used. Strategies for assessing the success of the instructional lab should be included as well. (The present project relied to heavily on teacher-made, pencil and paper assessments).

Both the conceptual framework and the assessment framework need to be incorporated into a comprehensive evaluation plan. While the development of an overall framework should be the responsibility of a curriculum coordinator, individual teachers may need training in developing assessments suitable for the workplace. (At present, the assessments used in classes don't show a strong enough relationship to the demands of the actual workplace).

3. Respond to the needs of workers who need additional support in order to develop the necessary TQM skills. Consider two options:

a. Split a course in two - one level for low intermediate - another for high intermediate; the low intermediate class should focus on the kind of functional communication and problem solving skills needed in a TQM environment. Low intermediates should be allowed to take several classes in a course sequence. (At the lower levels of proficiency, a single course does not

provide enough opportunity for lasting skill development.)

b. Use teachers who know how to set up collaborative learning activities that work well in a multi-level classroom and provide additional support in the form of tutoring or focused Learning Center activities.

4. Consider offering a series of workshops on "Communication Strategies for TQM" to help build cross-cultural understanding and facilitate communication between front-line workers and supervisors. In such workshops, staff can discuss the purpose of the program and explain the nature of language, literacy, and learning in the workplace.

By developing a conceptual framework and linking it to a comprehensive assessment model, the project can develop assessment data that is comparable across groups and can provide strong documentation of success in the future. Implementing extended classes and suggesting supervisor workshops helps the program to remain responsive to learner concerns.